

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. - 2. (canceled)

3. (Currently Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing a PFC gas which contains at least one of SF_6 and NF_3 by hydrolysis by making said PFC contact with a PFC decomposing catalyst;

decomposing a toxic component containing ~~at least one of SO_3 , HF , NO , NO_2 , CO and SO_2F_2~~ produced by said decomposition of PFC by making said toxic component contact with a toxic component removing catalyst provided at the rear stage of said PFC decomposing process;

washing the gas generated by said decomposition of said toxic component by making said gas contact with at least one of water and an aqueous alkaline solution;

removing at least part of ~~decomposition products of~~ said toxic component from said gas washed containing at least one of SO_3 and HF produced by said decomposition of said PFC in said washing step, wherein a waste including a mist containing decomposition products of said toxic component remains after said removing of said at least part of decomposition products;

removing said mist from said waste remaining after the washing, thereby removing PFC decomposition products of said toxic component accompanied with the mist, wherein a gas remains after said removing of said mist from said waste; and

exhausting the gas from which the mist has been removed in the step of removing said mist from said waste;

wherein said step of removing mist is performed to remove at least one of SO_x and NO_x accompanying water, which are decomposition products of said at least one of SF_6 and NF_3 , from said washed gas, and

wherein said step of removing mist is performed by a cyclone type mist separator that removes mist by centrifugal force, such that the removed mist is then discharged through a lower liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said cyclone type mist separator are discharged in a form of liquid of a gather of residual mists through an upper liquid waste outlet provided at an entry end of a rear stage of said cyclone type mist separator installed in the emission side of said gas exhausted in said exhausting step; and

which further includes the step of draining each of the liquid discharged from said lower liquid waste outlet and the liquid discharged from said upper liquid waste outlet, through separate piping connections extending from said lower liquid waste outlet and said upper liquid waste outlet, respectively, to a storage tank.

4. (Currently Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing a PFC gas which contains at least one of SF_6 and NF_3 by diluting said at least one of SF_6 and NF_3 with nitrogen, and contacting the diluted gas with a PFC decomposition catalyst in the presence of air and water;

decomposing a toxic component containing ~~at least one of SO_3 , HF , NO , NO_2 , CO and SO_2F_2~~ produced by said decomposition of PFC by making said toxic component contact with a toxic component removing catalyst provided at the rear stage of said PFC decomposing process;

washing the gas generated by said decomposition of said toxic component by making said gas contact with at least one of water and an aqueous alkaline solution;

removing at least part of said toxic component containing at least one of SO_3 and HF produced by said decomposition of said PFC ~~decomposition products from said gas washed~~ in said washing step, wherein a waste including a mist containing decomposition products of said toxic components remains after said removing of said at least part of decomposition products;

removing said mist from said waste remaining after the washing, thereby removing PFC decomposition products of said toxic components accompanied with the mist, wherein a gas remains after said removing of said mist from said waste; and

exhausting the gas from which the mist has been removed in the step of removing said mist from said waste,

wherein said step of removing mist is performed to remove at least one of SO_x and NO_x accompanying water, which are decomposition products of said at least one of SF_6 and NF_3 , from said washed gas, and

wherein said step of removing mist is performed by a cyclone type mist separator that removes mist by centrifugal force, such that the removed mist is then discharged through a lower liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said cyclone type mist separator are discharged in a form of liquid of a gather of residual mists through an upper liquid waste outlet provided at an entry end of a rear stage of said cyclone type mist separator installed in the emission side of said gas exhausted in said exhausting step; and

which further includes the step of draining each of the liquid discharged from said lower liquid waste outlet and the liquid discharged from said upper liquid waste outlet, through separate piping connections extending from said lower liquid waste outlet and said upper liquid waste outlet, respectively to a storage tank.

5-10. (Canceled)

11. (Currently Amended) A method of treating perfluorocompound (PFC) gas comprising the steps of:

decomposing a PFC gas which contains at least one of SF_6 and NF_3 by hydrolysis by making said PFC contact with a PFC decomposing catalyst;

decomposing a toxic component containing at least one of SO_3 , HF , NO , NO_2 , CO and SO_2F_2 produced by said decomposition of PFC by making said toxic component contact with a toxic component removing catalyst provided at the rear stage of said PFC decomposing process;

washing the decomposed gas, which contains decomposition products of said toxic components including HF and at least one of SO_x and NO_x generated by said decomposition, by making said decomposed gas contact with at least one of water and an aqueous alkaline solution to make the decomposition products of said toxic component be absorbed therein;

removing at least part of ~~decomposition products from said decomposed gas washed~~ said toxic component containing at least one of SO₃ and HF produced by sad decomposition of said PFC in said washing step, wherein a waste including a mist containing decomposition products of said toxic component remains after said removing of said at least part of decomposition products; and

exhausting waste gas resulting from the washing,

wherein said step of exhausting the waste gas resulting from the washing is performed after removing said mist from said waste remaining after the washing, thereby removing the decomposition products of aid toxic component accompanied with the mist, and

wherein said mist is removed from said waste by a cyclone type mist separator that removes mist by centrifugal force , such that the removed mist is then discharged through a lower liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said cyclone type mist separator are discharged in a form of liquid of a gather of residual mists through an upper liquid waste outlet provided at an entry end of a rear stage of said cyclone type mist separator installed in the emission side of said gas exhausted in said exhausting step; and

which further includes the step of draining each of the liquid discharged from said lower liquid waste outlet and the liquid discharged from said upper liquid waste outlet, through separate piping connections extending from said lower liquid waste outlet and said upper liquid waste outlet, respectively, to a storage tank.

12. (Previously Presented) A method of treating perfluorocompound (PFC) gas according to claim 11, wherein said decomposition of the PFC gas is performed by hydrolysis, including contacting the PFC gas with a decomposition catalyst in the presence of air and water.

13. (Currently Amended) A method of treating perfluorocompound (PFC) gas comprising the sequential steps of:

decomposing a PFC gas which contains at least one of SF_6 and NF_3 by hydrolysis by making said PFC contact with a PFC decomposing catalyst;

decomposing a toxic component containing ~~at least one of SO_3 , HF , NO , NO_2 , CO and SO_2F_2~~ produced by said decomposition of PFC by making said toxic component contact with a toxic component removing catalyst provided at the rear stage of said PFC decomposing process;

washing the gas generated by said decomposition with water;

removing at least part of decomposition products from said gas washed said toxic component containing at least one of SO_3 and HF produced by said decomposition of said PFC in said washing step, wherein a waste including a mist

containing decomposition products of said toxic component remains after said removing of said at least part of decomposition products;

removing said mist from said waste of said water-washed gas by a cyclone separator, wherein a gas remains after said removing of said mist from said waste; and

exhausting the gas from which said mist has been removed from said waste of said water-washed gas, outside the treating system,

wherein said step of removing mist is performed by said cyclone separator such that the removed mist is then discharged through a lower liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said cyclone separator are discharged in a form of liquid of a gather of residual mists through and upper liquid waste outlet provided at an entry end of a rear stage of said cyclone separator installed in the emission side of said gas exhausted in said exhausting step; and

which further includes the step of draining each of the liquid discharged from said lower liquid waste outlet and the liquid discharged from said upper liquid waste outlet, through separate piping connections extending from said lower liquid waste outlet and said upper liquid waste outlet, respectively, to a storage tank.

14. (Previously Amended) A method of treating perfluorocompound (PFC) gas according to claim 13, wherein said removed mist is collected and retained in said storage tank as an HF-containing wastewater before discharging outside the treatment system.

15. (Canceled).

16. (Previously Amended) A method of treating perfluorocompound (PFC) gas according to claim 13, wherein said cyclone separator comprises any material selected from the group consisting of a vinyl chloride and an acrylate resin.

17. (Previously Presented) A method of treating perfluorocompound (PFC) gas, comprising the steps of:

decomposing a PFC gas which contains at least one of SF₆ and NF₃ by hydrolysis by making said PFC contact with a PFC decomposition catalyst in the presence of nitrogen-diluted air and water;

a toxic component decomposing process, including decomposing a toxic component produced in the PFC decomposing process by a toxic component decomposition catalyst provided at a rear stage of said PFC decomposing process;

a washing process, including washing the gas produced in said toxic component decomposition process by contacting the generated gas with at least one of water and an alkaline aqueous solution;

a decomposition product removal process, including removing at least part of decomposition products from said gas washed in said washing process, wherein a waste including a mist containing decomposition products remains after said decomposition product removal process; and

a mist removal process, including removing said mist from said waste remaining after said washing process,

wherein said mist removal process is performed by a cyclone type mist separator that removes mist by centrifugal force, such that the removed mist is then discharged through a lower liquid waste outlet in a form of liquid of a gather of mists, and residual mists not removed by said cyclone type mist separator are discharged in a form of liquid of a gather of residual mists through a upper liquid waste outlet provided at an entry end of the [a] rear stage of said cyclone type mist separator installed in the emission side of said gas exhausted in said exhausting step; and

which further includes the step of draining each of the liquid discharged from said lower liquid waste outlet and the liquid discharged from said upper liquid waste outlet, through separate piping connections extending from said lower liquid waste outlet and said upper liquid waste outlet, respectively, to a storage tank.